Extension of Production Tax Credit for Wind Generation

Statement of
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Berman Economics is an economic consulting firm specializing in energy, environmental, and natural resource issues, including the economics of wind generation; and has substantial experience with electric utilities and the economics of regulated markets and the implications for public policy. Berman Economics is pleased to provide comments on whether the Production Tax Credit (PTC) should be extended. Berman Economics, like most economists, is fundamentally opposed to government subsidies. However, based on our analysis of the PTC, we find that the PTC does *not* constitute a subsidy as economists typically define that term. Rather, the PTC falls in the category of an incentive to encourage economic development. It may also serve to reduce unintended consequences of other regulatory legislation.

Considered as an economic development incentive, Berman Economics finds that the PTC is exceptionally cost-effective both in the very narrow sense of Federal budget impacts, as well as from a broader economic perspective. Accordingly, Berman Economics strongly urges Congress to extend the PTC beyond its scheduled sunset on December 31, 2012. Berman Economics emphasizes that our support for the PTC is limited to the PTC alone, and *does not* include support for an investment tax credit (ITC) *in lieu* of the PTC, which would not necessarily provide the same benefits and would front-load Federal budget costs. Based on our analyses, Berman Economics finds that extension of the PTC would make a net contribution to Federal budget revenues. We further find that the PTC tends to favor US firms relative to foreign firms and recommend consideration of modifications that would further target the incentive to US manufacturers. Specifically, our comments demonstrate:

- **PTC Has A Positive Impact On The Federal Budget; and**
- **Production And Efficiency Incentives Favor US Manufacturers.**

PTC Has A Positive Impact On The Federal Budget

Our analysis of Federal budget impacts appropriately focuses on incremental PTC impacts. Not extending the PTC would have no immediate impact in overall PTC credits in 2013 and in the near future for current wind generation and wind generation added in 2012. Rather, not extending the PTC would eliminate *additions* to PTC for generation added after December 31, 2012, and would not even *begin* to significantly reduce PTC credits until 2015 because the PTC benefit per project is good for 10 years. Accordingly, our analysis focuses only on the increment in PTC credits. Similarly, we focus only on the likely direct employment and associated budget impacts.

All analyses, including those by the Congressional Research Service, support the conclusion that the level of economic activity in the wind industry, including employment, is closely tied to the PTC. Due to requirements of the Public Utilities Regulatory Policies ACT (PURPA) regarding pricing and avoided costs, some states may face constraints on wholesale pricing of renewable energy. Accordingly, a PTC may be necessary even with mandatory Renewable Portfolio Standards in many states. The absence of a PTC may be a significant barrier to development of wind generation. Indeed, it is noteworthy that on May 7, 2012, Gamesa suspended plans to install what may have become the first U.S. offshore turbine, citing policy uncertainty. The company will instead move forward with a similar project off Spain's Canary Islands.[1]

Our narrow focus on budget impacts of direct employment consequences should not be construed as our assessment that these would be the only negative consequences of not extending the PTC. Rather, our conclusion is that this impact represents an obvious lower bound on negative impacts; and that this lower bound estimate is more than sufficient to justify extending the credit.

Berman Economics' analysis assumes an increase in PTC credits of approximately $552 million annually, based on the increase in wind generation between 2010 and 2011. Specifically, assuming 94,652 thousand mWh in 2010 and 119,747 thousand mWh in 2011,[2] we calculate an increase of 25,097 thousand mWh. Based on a payment of $22 / mWh, the incremental PTC was $552 million.

Since the Bureau of Labor Statistics (BLS) does not yet report wind energy employment, the Congressional Research Service (CRS) identifies the American Wind Energy Association (AWEA) as the best source of information on wind energy employment.[3] Based on an independent study, AWEA reports that 2011 employment in wind generation of 78,000 would decline to 41,000 in 2013 if the PTC were not renewed.[4] Under the highly restrictive assumption that the *only* benefit of the PTC were to support the at risk 37,000 jobs, the budget cost for each of these jobs, in the form of PTC credits, would be $15,000 per job. The budget question, then, is to identify the budget revenues that flow from those jobs.

The direct Federal budget "benefit" of these jobs is $30,000 per job assuming no indirect employment or other economic consequences. Specifically, our best estimate of the average salary in the wind industry is approximately $62,000[5], which was confirmed as a reasonable estimate in private conversations with BLS. Based on taking the standard

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[1] http://www.businessweek.com/news/2012-05-07/gamesa-to-install-first-offshore-wind-turbine-in-spain-in-2013

[2] *Electric Power Monthly*, U.S. Department of Energy. February 2012. Retrieved March 11, 2012. http://www.eia.gov/electricity/monthly/pdf/epm.pdf.

[3] Platzer, Michaela D., *U.S. Wind Turbine Manufacturing: Federal Support for an Emerging Industry*, Congressional Research Service, September 23, 2011, http://www.fas.org/sgp/crs/misc/R42023.pdf, page 19, fn 81.

[4] *Impact of the Production Tax Credit on the U.S. Wind Market*, Navigant Consulting, December 11, 2011, Navigant reference 152362.

[5] http://www.simplyhired.com/a/salary/search/q-wind+energy

deduction, an average income tax rate of 15% and FICA and Medicare taxes at 6.2% and 1.45% respectively, this would result in budget revenues of approximately $13,000, *exclusive* of any employer income taxes and FICA contributions. Based on unemployment compensation of $330 / week[6], each of these jobs represents an unemployment compensation liability of approximately $17,000 per year per job.

Thus, at a minimum, the negative impact on the Federal budget would be twice the PTC savings, assuming *no* indirect employment impacts, no other related losses, and no negative impacts on states. On a Federal budget basis alone, and under the overly conservative and highly restrictive assumptions herein, the PTC should be reauthorized. From a budget impact, it excludes the tax revenues that would be paid by future wind projects. Indeed, *NextEra Energy* conservatively estimates that even a one-year extension of the PTC would result in a fiscal net benefit to the government of $768 million.[7]

Production And Efficiency Incentives Favor US Manufacturers

Unlike an investment tax credit that accrues whether or not an investment is used or useful and remains so over its life, a production tax credit is directly proportional to the need and usefulness of the investment, over the life of the investment. It therefore represents a secondary distribution of the continuing benefits the investment creates. Moreover, where an ITC is at best neutral with respect to efficiency, the PTC favors more efficient generation systems to less efficient generation since the payments are greater the greater the generation and especially the lower the losses in the transformation process as generation voltage from a turbine is stepped-up first at the turbine and again at the substation prior to transmission.

Production and efficiency incentives tend to favor US manufacturers. Unlike foreign manufacturers, US turbine manufacturers such as G.E. and European owned turbine manufacturers with US facilities such as Vestas and Gamesa focus on high-end, more efficient turbines. Chinese imports, by contrast, are oriented towards the lower-end market more sensitive to initial cost. Similarly, step-up transformers are often the "weak link" in wind farm designs as inefficient transformers have a low initial cost but substantially higher losses. More efficient step-up transformers, such as those with amorphous metal cores available from major US manufacturers like ABB and Howard Industries, may be marginally more expensive than foreign imports but have substantially lower losses resulting in more electricity available for sale. Wind farm developers who develop wind farms intending to operate the farms themselves and sell the power tend to focus more on efficiency as their earnings derive from production. Developers who focus on assembling projects for sale to operators tend to focus on lower first cost equipment at the expense of efficiency, as profits on the sale of the farm are higher with lower development costs, and the demand for wind capacity relative to supply has not permitted discrimination based on efficiency.

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[6] http://money.msn.com/how-to-budget/can-you-live-on-330-a-week-mainstreet.aspx

[7] http://www.nexteraenergyresources.com/pdf_redesign/wind_ptc.pdf.

Since production and efficiency incentives favor the relatively more efficient products of US manufacturers, conditioning the availability of the PTC to power produced by the most efficient turbines and transformers available for sale at the time of development will have the added advantage of favoring US manufacturers without contravening commitments under the World Trade Organization. So conditioning the PTC would also increase green energy and electric supply diversity benefits as it would result in more power production from a given resource.

Another method for increasing the benefits of the PTC for given costs would be to lengthen the period of time between required reauthorizations[8]. Short-term authorizations tend to discourage significant long-term commitments. That is, a portion of the imports of the wind turbine manufacturing industry relate to a lack of domestic capacity to satisfy domestic demand. The importance of the PTC to industry economics and the uncertainty regarding reauthorization leads to a risk-averse underinvestment behavior – building capacity only for "certain" demand, and filling in with imports for the difference. Moreover, US exports have been very small (less than $150 million) – the result of opportunities presented by variations in the pattern of domestic demand. For given PTC, a more certain commitment (longer time between reauthorizations) would provide necessary certainty encouraging larger capacity expansions. Thus the same PTC annual payment would lead to a larger increase in domestic output and employment, lower imports and larger exports.

[8] The importance of certainty associated with Federal policy in this area is also addressed by the Congressional Research Service in its 2011 assessment of the importance of Federal Support.

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